Replace the paragraph beginning at page 2, line 3 , with:

In an article [H. H. Baker and T. O. Binford. Depth from edge and intensity based stereo. In Proceedings of the International Joint Conference on Artificial Intelligence, page 631-636, Vancouver, Canada, 1981] and an article [Y. Ohta and T. Kanade. Stereo by intra- and inter-scan line search. IEEE Transactions on Pattern Analysis and Machine Intelligence, PAMI-7(2):139-154, March 1985], stereo matching methods based on dynamic programming (DP) and heuristic post-processing are described. In an article [Ingemar J. Cox, Sunita L. Hingorani, Satish B. Rao, and Bruce M. Maggs. A maximum likelihood stereo algorithm. Computer Vision and Image Understanding, 63(3):542-567, May 1996] and an article [Stan Birchfield and Carlo Tomasi. Depth discontinuities by pixel-to-pixel stereo. In Proceeding of the IEEE International Conference on Computer Vision, pages 1073-1080m, Bombay, India, 1998], single-level DP in discrete pixel oriented methods are described. In an article [Peter N. Belhumeur. A Bayesian approach to binocular stereopsis. International Journal of Computer Vision, 19(3):237-260, 1996], a more complex DP method with sub-pixel resolution is described. Though this class of methods is much faster than the Markov random field based ones, they do not scale well for parallel processing and are thus still unsuitable for real-time stereo matching.

Replace the paragraph beginning at page 5, line 28 , with:

An image input to the left and right cameras 10 and 11 is converted into digital signals in the form of pixels in the image processing unit 12 and one scan line of each image is provided to the SMC 13 in units of a pixel. After the scan line is fully provided to the SMC 13, disparity data is output in units of a pixel. The process in which a disparity is output is repeated for all scan lines of the pair of images in the same way. Therefore, only the process for processing a pair of scan lines will now be explained.

Replace the paragraph beginning at page 6, line 3 , with:

A4 CONCL.

As shown in FIG. 2, the SMC 13 contains a linear array of N identical processing elements 22 and two linear arrays, each of N/2 image registers 20 and 21. Here, N is a multiple of 2.

Replace the paragraph beginning at page 6, line 25 , with:

A5 CONCL.

Therefore, half of the processing elements 22 and half of the image registers (20 or 21) operate at each system clock cycle, beginning from the even-numbered processing elements 22 and right image registers 20. The processing step is controlled by read/write signal (F/B or R/W, hereinafter referred to as "R/W"). When an R/W signal line is in a high state, data is written and when the R/W signal line is in a low state, data is read.

Replace the paragraph beginning at page 7, line 6 , with:

A6 CONCL.

In the last ClkO in the initializing process, after the first half of the data in the scan line of the right image is input to the processing elements 22, the first pixel in the scan line of the left image is input to the processing elements 22. At this time, registers inside each processing element 22 are set to an appropriate initial value. The initial value of the processing element 0 is '0' and the initial value of all the other processors is the maximum (or close to the maximum) possible value. Then, the processing process is continuously applied to all pixel data input at each system clock until data in the present scan line is all processed (ClkE is for the left image, and ClkO is for the right image).